

DETAILED ACTION

Preliminary Amendment

1. Applicant's Preliminary Amendment, filed February 6, 2006, is acknowledged. Claims 1-43 are cancelled. Claims 44-59 have been added. Claims 44-59 are currently pending.

Information Disclosure Statement

2. The information disclosure statements (IDS) submitted on February 6, 2006, and August 28, 2006, are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Specification

3. The disclosure is objected to because of the following informalities:

- a. Abstract: the word "2match" appears to be a typographical error. Appropriate correction is required.

Drawings

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "14" has been used to designate both phosphor material in figure 1 and a ceramic insulator layer in figure 2. Also, reference character 111 has been used to designate both a filter in figures 9 and 10, and a display device in figure 11.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: ceramic insulator layer (84) (spec. page 27, line 2).

6. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

7. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the layer of electroluminescent material sandwiched between but spaced from two electrode layers of claims 44, 46, 48, 50, 51, 53, 55, 56, and 59 must be shown or the feature(s) canceled from the claim(s). The layers of electroluminescent material shown in the drawings are adjacent to at least one electrode layer and are not spaced from two electrode layers. No new matter should be entered.

8. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet,

and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency.

9. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

10. The following claims are objected to because of the following informalities:
- a. Claims 48 and 50, "the filter" lacks antecedent basis. It is assumed for examination that this phrase refers to the filter/absorber.
 - b. Claim 48, "the phosphor" lacks antecedent basis.
 - c. Claim 52, the word "multiplayer" is misspelled.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claim 52 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

13. The phrase “radiant” colour film as used in claim 52 is not recognized as a generic type of film commonly known in the art. The word “radiant” is a trademark or trade name used by 3M (Minnesota Mining and Manufacturing). When a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of the 35 U.S.C. 112, second paragraph. *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982) (MPEP 2173.05(u)).

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims 55 and 56 is rejected under 35 U.S.C. 102(b) as being anticipated by Tanabe et al., European Patent Application, EP 0 998 171 A2.

16. With regard to claim 55, in figures 1 and 2, Tanabe discloses an electroluminescent display of the type wherein a layer of electroluminescent material (19A) is sandwiched between but spaced from two electrode layers (18, 21), and the electroluminescent material (19A) is composed of a plurality of separate areas each matching in shape and size the image which the relevant portion of the display is to show (shown in figure 1), each such area being surrounded by a layer of insulating material, in which the display comprises a thin somewhat transparent electrode (21) [0027-0038].

17. With regard to claim 56, in figures 1 and 2, Tanabe discloses an electroluminescent display of the type wherein a layer of electroluminescent material (19A) is sandwiched between but spaced from two electrode layers (18, 21), and the electroluminescent material (19A) is composed of a plurality of separate areas each matching in shape and size the image which the relevant portion of the display is to show (shown in figure 1), each such area being surrounded by a layer of insulating material, in which the electroluminescent material (19A) comprises phosphor and the phosphor and the insulating material (19B) are coloured with a different intensity of the same colour. [0008, 0027-0038].

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 44-51, 53-54, and 57-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanabe, as applied to claim 56 above, in view of Hiraishi et al., U.S. Patent No. 6,181,062 B1.

20. With regard to claim 44, in figures 1 and 2, Tanabe discloses an electroluminescent display of the type wherein a layer of electroluminescent material (19A) is sandwiched between but spaced from two electrode layers (18, 21), and the electroluminescent material (19A) is composed of a plurality of separate areas each matching in shape and size the image which the relevant portion of the display is to

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show (shown in figure 1), each such area being surrounded by a layer of insulating material (19B) [0027-0038].

21. Tanabe does not expressly disclose a front filter/absorber layer. Hiraishi, in figure 20, teaches an electroluminescent display (10) having a front filter/absorber layer (26/21) as an overlay or transparent material, arranged so as to modify the manner in which external light entering the display (10) from the ambient surroundings is transmitted thereinto and then reflected back, in which the filter/absorber (26/21) is a part of a substrate (12/26/21) of the display (10) (col. 2, line 18 - col. 4, line 35 & col. 19, lines 34-58).

22. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Tanabe display with the filter/absorber, taught by Hiraishi, so that contrast is improved and the layers of the EL display (electrodes, luminescent layer, etc.) cannot be seen when the display is in the off state, as taught by Hiraishi (col. 2, line 40-52).

23. With regard to claim 45, in figures 1 and 2, Tanabe discloses that the substrate (1) supports one of the electrode layers (18) [0027-0038].

24. With regard to claim 46, in figures 1 and 2, Tanabe discloses an electroluminescent display of the type wherein a layer of electroluminescent material (19A) is sandwiched between but spaced from two electrode layers (18, 21), and the electroluminescent material (19A) is composed of a plurality of separate areas each matching in shape and size the image which the relevant portion of the display is to

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show (shown in figure 1), each such area being surrounded by a layer of insulating material (19B) [0027-0038].

25. Tanabe does not expressly disclose a front filter/absorber layer. Hiraishi, in figure 20, teaches an electroluminescent display (10) having a front filter/absorber layer (26/21) as an overlay or transparent material, arranged so as to modify the manner in which external light entering the display (10) from the ambient surroundings is transmitted thereinto and then reflected back, in which the light reflected from the front of the display is very much greater than the light reflected off any of the internal interfaces (col. 2, line 18 - col. 4, line 35 & col. 19, lines 34-58).

26. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Tanabe display with the filter/absorber, taught by Hiraishi, so that contrast is improved and the layers of the EL display (electrodes, luminescent layer, etc.) cannot be seen when the display is in the off state, as taught by Hiraishi (col. 2, line 40-52).

27. With regard to claim 47, in figure 20, Hiraishi teaches that the front filter/absorber layer is formed from a coloured transparent material (col. 2, line 60 – col. 3, line 9).

28. With regard to claim 48, in figures 1 and 2, Tanabe discloses an electroluminescent display of the type wherein a layer of electroluminescent material (19A) is sandwiched between but spaced from two electrode layers (18, 21), and the electroluminescent material (19A) is composed of a plurality of separate areas each matching in shape and size the image which the relevant portion of the display is to

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show (shown in figure 1), each such area being surrounded by a layer of insulating material (19B) [0027-0038].

29. Tanabe does not expressly disclose a front filter/absorber layer. Hiraishi, in figure 20, teaches an electroluminescent display (10) having a front filter/absorber layer (26/21) as an overlay or transparent material, arranged so as to modify the manner in which external light entering the display (10) from the ambient surroundings is transmitted thereinto and then reflected back (col. 2, line 18 - col. 4, line 35 & col. 19, lines 34-58).

30. The filter/absorber layer (26/21) serves to reflect environmental light (col. 2, line 40-52), and the filter portion (26) transmits the same spectrum emitted by the electroluminescent material (col. 3, lines 1-6) and reflects other wavelengths of light. So that reflectance spectrum of the filter/absorber (26/21) is shifted in wavelength compared to the transmittance spectrum of the filter/absorber (26/21), so that the colour/hue of the emitted light from the phosphor (electroluminescent material) is not the same as that of the reflected light from the very front surface of the display (10).

31. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Tanabe display with the filter/absorber, taught by Hiraishi, so that contrast is improved and the layers of the EL display (electrodes, luminescent layer, etc.) cannot be seen when the display is in the off state, as taught by Hiraishi (col. 2, line 40-52).

32. With regard to claim 49, in figure 20, Hiraishi teaches that the front filter/absorber layer (26/21) is formed from a coloured transparent material (col. 2, lines 53-59).

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33. With regard to claim 50, in figures 1 and 2, Tanabe discloses an electroluminescent display of the type wherein a layer of electroluminescent material (19A) is sandwiched between but spaced from two electrode layers (18, 21), and the electroluminescent material (19A) is composed of a plurality of separate areas each matching in shape and size the image which the relevant portion of the display is to show (shown in figure 1), each such area being surrounded by a layer of insulating material (19B) [0027-0038].

34. Tanabe does not expressly disclose a front filter/absorber layer. Hiraishi, in figure 20, teaches an electroluminescent display (10) having a front filter/absorber layer (26/21) as an overlay or transparent material, arranged so as to modify the manner in which external light entering the display (10) from the ambient surroundings is transmitted thereinto and then reflected back, in which the front filter/absorber layer is formed from a coloured transparent material, and in which the front filter/absorber layer has a transmission colour that matches the light emitted by the electroluminescent material when illuminated (col. 2, line 18 - col. 4, line 35& col. 19, lines 34-58).

35. The electroluminescent material (19A) and the insulating material (19B) disclosed in Tanabe are almost colorless [0008] and the filter/absorber (26/21) taught by Hiraishi can have nearly any color of filter transmission (col. 2, line 53 - col. 3, line 9). Therefore these respective colors are complimentary.

36. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Tanabe display with the filter/absorber, taught by Hiraishi,

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so that the layers of the EL display (electrodes, luminescent layer, etc.) cannot be seen when the display is in the off state, as taught by Hiraishi (col. 2, line 40-52).

37. With regard to claim 51, in figures 1 and 2, Tanabe discloses an electroluminescent display of the type wherein a layer of electroluminescent material (19A) is sandwiched between but spaced from two electrode layers (18, 21), and the electroluminescent material (19A) is composed of a plurality of separate areas each matching in shape and size the image which the relevant portion of the display is to show (shown in figure 1), each such area being surrounded by a layer of insulating material (19B) [0027-0038].

38. Tanabe does not expressly disclose a front filter/absorber layer. Hiraishi, in figure 20, teaches an electroluminescent display (10) having a front filter/absorber layer (26/21) as an overlay or transparent material, arranged so as to modify the manner in which external light entering the display (10) from the ambient surroundings is transmitted thereinto and then reflected back, in which the filter/absorber layer has a specularly-reflective front surface (col. 2, line 18 - col. 4, line 35 & col. 19, lines 34-58).

39. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Tanabe display with the filter/absorber, taught by Hiraishi, so that the layers of the EL display (electrodes, luminescent layer, etc.) cannot be seen when the display is in the off state, as taught by Hiraishi (col. 2, line 40-52).

40. With regard to claim 53, in figures 1 and 2, Tanabe discloses an electroluminescent display of the type wherein a layer of electroluminescent material (19A) is sandwiched between but spaced from two electrode layers (18, 21), and the

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electroluminescent material (19A) is composed of a plurality of separate areas each matching in shape and size the image which the relevant portion of the display is to show (shown in figure 1), each such area being surrounded by a layer of insulating material (19B) [0027-0038].

41. Tanabe does not expressly disclose a front filter/absorber layer. Hiraishi, in figure 20, teaches an electroluminescent display (10) having a front filter/absorber layer (26/21) as an overlay or transparent material, arranged so as to modify the manner in which external light entering the display (10) from the ambient surroundings is transmitted thereinto and then reflected back, in which the filter/absorber (26/21) is a highly scattering white film and wherein the scattering element of the film (21) is thin compared to the spatial extent of the smallest element of the display (10) and the highly scattering film (21) scatters light essentially uniformly over the visible spectra (col. 2, line 18 - col. 4, line 35 & col. 19, lines 34-58).

42. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Tanabe display with the filter/absorber, taught by Hiraishi, so that the layers of the EL display (electrodes, luminescent layer, etc.) cannot be seen when the display is in the off state, as taught by Hiraishi (col. 2, line 40-52).

43. With regard to claim 54, in figure 20, Hiraishi teaches that filter/absorber (26/21) layer is a neutral density filter (col. 2, line 18 - col. 4, line 35 & col. 19, lines 34-58).

44. With regard to claim 57, all of the limitations are disclosed by Tanabe, as discussed in the rejection of claim 56 above, except Tanabe does not expressly disclose a front filter/absorber.

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45. Hiraishi, in figure 20, teaches an electroluminescent display (10) having a front filter/absorber layer (26/21) as an overlay or transparent material, arranged so as to modify the manner in which external light entering the display (10) from the ambient surroundings is transmitted thereinto and then reflected back, the filter/absorber layer being formed of a coloured transparent material (col. 2, line 18 - col. 4, line 35 & col. 19, lines 34-58).

46. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Tanabe display with the filter/absorber, taught by Hiraishi, so that the layers of the EL display (electrodes, luminescent layer, etc.) cannot be seen when the display is in the off state, as taught by Hiraishi (col. 2, line 40-52).

47. With regard to claim 58, all of the limitations are disclosed by Tanabe and Hiraishi, as discussed in the rejection of claim 57 above, however neither Tanabe nor Hiraishi expressly disclose that which the filter/absorber layer is coloured with a different intensity of the same colour as the phosphor and the insulating material.

48. Tanabe teaches that the phosphor (19A) and the insulating material (19B) are colorless [0008], and Hiraishi teaches that the filter/absorber (26/21) can be colored any color, which makes the color chosen a matter of design choice (col. 2, line 53 - col. 3, line 9). It is further the objective of the Hiraishi invention to configure the filter/absorber (26/21) so that the underlying layers of the electroluminescent display are not visible when the display is turned off (col. 2, lines 18-22).

49. Therefore, At the time of invention, it would have been an obvious design choice for a person having ordinary skill in the art to construct the Tanabe display, with the

Hiraishi filter/absorber, so that the filter/absorber layer is coloured with a different intensity of the same colour as the phosphor and the insulating material, so that these elements of the electroluminescent display are not visible when the display is turned off.

50. With regard to claim 59, in figures 1 and 2, Tanabe discloses an electroluminescent display of the type wherein a layer of electroluminescent material (19A) is sandwiched between but spaced from two electrode layers (18, 21), and the electroluminescent material (19A) is composed of a plurality of separate areas each matching in shape and size the image which the relevant portion of the display is to show (shown in figure 1), each such area being surrounded by a layer of insulating material (19B) [0027-0038].

51. Tanabe does not expressly disclose a front filter/absorber layer. Hiraishi, in figure 20, teaches an electroluminescent display (10) having a front filter/absorber layer (26/21) as an overlay or transparent material, arranged so as to modify the manner in which external light entering the display (10) from the ambient surroundings is transmitted thereinto and then reflected back, in which the front filter/absorber layer is formed from a coloured transparent material (col. 2, line 18 - col. 4, line 35& col. 19, lines 34-58).

52. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Tanabe display with the filter/absorber, taught by Hiraishi, so that the layers of the EL display (electrodes, luminescent layer, etc.) cannot be seen when the display is in the off state, as taught by Hiraishi (col. 2, line 40-52).

Conclusion

53. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Hollweg whose telephone number is (571) 270-1739. The examiner can normally be reached on Monday through Friday 7:30am-5:00pm E.S.T..

54. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

55. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TH/

/Nimeshkumar Patel/
Supervisory Patent Examiner, Art Unit 2879